STUDY OF THE SUBSTITUTION OF MODIFIED STARCHES FOR CLEAN LABEL STARCHES

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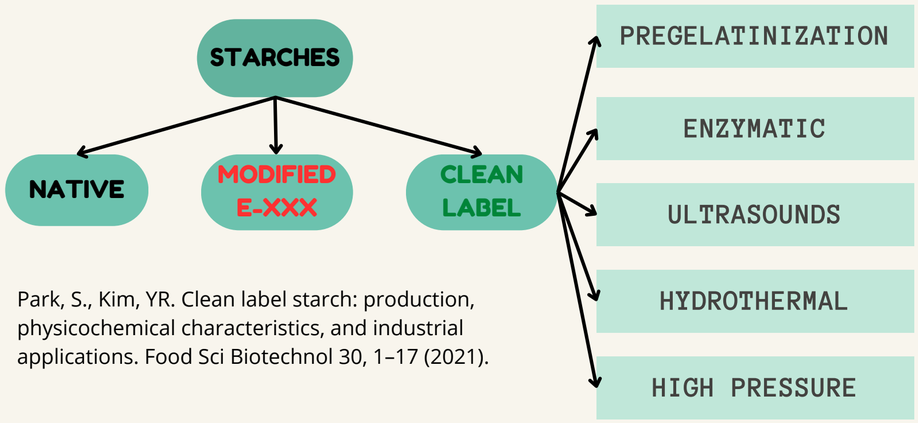
INTRODUCTION



Park, S., Kim, YR. Clean label starch: production, physicochemical characteristics, and industrial applications. Food Sci Biotechnol 30, 1–17 (2021).

OBJECTIVES

1) To study what clean label starches are and the processes used to obtain them.
2) To experimentally compare their functionalities to replace modified starches for clean label starches.

METHODOLOGY → 3 PARTS

STARCH AND WATER DISPERSIONS (5% and 8% w/v)

Room temperature + 60°C, 70°C, 80°C y 90°C

1. GENERAL STUDY WITH 36 DIFFERENT SAMPLES
2. QUALITATIVE STUDY
3. QUANTITATIVE STUDY

MATERIALS AND METHODS

1 and 2 **VISUAL ANALYSIS:** COLOUR, TRANSPARENCY, VISCOSITY (BOSTWICK), AIR RETENTION, GEL FORMATION AND TEXTURE

3 **QUANTITATIVE STUDY:** COLOUR (Coordinates L*a*b), RHEOMETRIC PROPERTIES AND WATER RETENTION CAPACITY

RESULTS

Table 1: Colour differences between samples SMP and CLA with Fred

SAMPLE	ΔE (FRED)
CLA (5% w/v)	3,11
SMP (5% w/v)	5,99

Table 2: Results of rehological parameters

Samples	K (Pa·s)^n 5% w/v	K (Pa·s)^n 8% w/v	Hysteresis area (5% w/v)
CLA	1,78	24,8	67,77
SMP	1,49	11,79	26
Universal	2,26	-	34,28
Fred	2,26	19,48	113,25

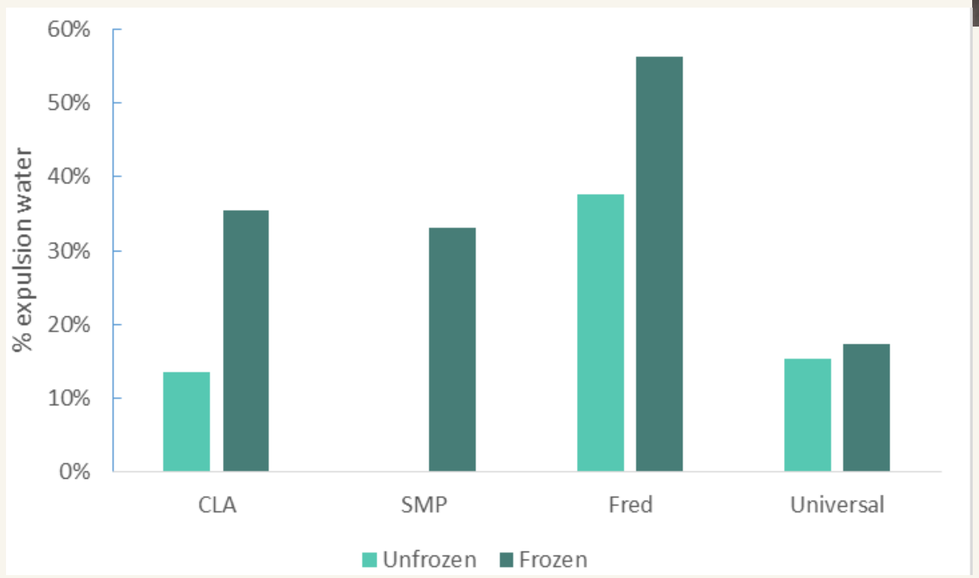


Figure 1: Water retention capacity (% expulsion water by centrifugation) comparing frozen samples with unfrozen samples

CONCLUSIONS

- To evaluate the substitution of modified starches for clean label starches, a **quantitative study** must be carried out.
- The **Universal** sample has a **different behaviour** compared to the other samples.
- The SMP and CLA samples behave similarly to Fred sample, but **CLA** is the **best candidate**
- It is necessary to **carry out** more tests on **finished products**